

PATENT

Atty. Dkt. No. NVDA/P001277

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Claim 1 (Currently Amended): Apparatus comprising:

[[an]] at least one output device interfaced to a motherboard;

a fixed rendering device mounted to the motherboard for generating information to be output on said output device;

an edge connector coupled to said fixed rendering device for attaching one of a plurality of different field-changeable graphics cards[[,]] including a field-changeable rendering card and a passive loop-through card, to the motherboard, said field-changeable rendering card capable of housing a discrete rendering device for generating information to be output on said output device, and said passive loop-through card enabling the implementation of low voltage differential signaling (LVDS) features in the apparatus by completing circuit paths for signals output from said fixed rendering device to said output device, the edge connector comprising a plurality of connector pins adapted for electrically engaging said field changeable cards and adapted to electronically detect the presence of the field-changeable rendering card or the passive loop-through card, and signal the presence and mode of operation of the field-changeable rendering card or the passive loop-through card; and

detection circuitry for detecting that [[a]] said field-changeable rendering card housing a the discrete rendering device [[is]] coupled to said edge connector and causing information from said field-changeable rendering card housing a discrete rendering device to be output on said output device.

Claim 2 (Original): The apparatus of claim 1, wherein said fixed rendering device is an integrated graphics processor and said discrete rendering device is a discrete graphics processing unit.

Claim 3 (Previously Presented): The apparatus of claim 2, wherein said discrete rendering device is adapted to receive a PCI express signal from said integrated

PATENT

Atty. Dkt. No. NVDA/P001277

graphics processor in order to generate a plurality of signals for display on said output device.

Claim 4 (Currently Amended): The apparatus of claim 11, wherein said discrete rendering device ~~graphics processing unit~~ is adapted to generate low voltage differential signaling (LVDS), digital video interface (DVI), television (TV) and video graphics array (VGA) signals.

Claim 5 (Previously Presented): The apparatus of claim 1, wherein said field-changeable rendering card does not house a discrete rendering device and comprises a passive loop-through card enabling the implementation of LVDS features in the apparatus.

Claim 6 (Original): The apparatus of claim 1, wherein the discrete rendering device is a transmission minimized differential signaling (TMDS) transmitter, and the field-changeable rendering card is a passive loop-through card.

Claim 7 (Original): The apparatus of claim 5, wherein said passive loop-through card completes circuit paths for signals output from said fixed rendering device to said output device.

Claims 8-11 (Cancelled)

Claim 12 (Currently Amended): The apparatus of claim 1, wherein the connector is adapted to cause an LVDS signal to be routed through the loop-through card to the output device ~~comprising a display~~.

Claim 13 (Currently Amended): The apparatus of claim ~~11~~ 1, wherein ~~the plurality of field-changeable graphics cards includes a passive loop-through card and the edge connector of the passive loop-through card~~ is adapted to receive a plurality of DV1

PATENT

Atty. Dkt. No. NVDA/P001277

signals on several of the plurality of connector pins and route the DVI signals through the loop-through card to the output device.

Claim 14 (Currently Amended): The apparatus of claim 13, wherein the loop-through card further comprises a discrete rendering device configured to supply output signals to the output displays comprising video graphics (VGA) and Television (TV) devices.

Claim 15 (Currently Amended): The apparatus of claim 1, wherein any of the plurality of different field-changeable graphics cards comprises ~~[[a]] the loop-through card and connection with~~ a discrete rendering device configured to supply output signals to the output displays comprising video graphics (VGA) and Television (TV) devices.

Claim 16 (Cancelled)

Claim 17 (Previously Presented): The apparatus of claim 1, wherein the connector is adapted to allow a manufacturer to configure a single motherboard for at least two different graphics modes utilizing different ones of the fully-changeable graphics cards.

Claim 18 (Previously Presented): The apparatus of claim 1, wherein the connector is configured to allow a user of a computing device to replace a graphics system post-assembly.

Claim 19 (Previously Presented): The apparatus of claim 1, wherein the connector is further adapted to maintain a graphics card in a substantially parallel, spaced apart relation relative to the motherboard.

Claim 20 (Previously Presented): Apparatus as claimed in claim 1, wherein a voltage detected on one of the connector pins, coupled to one of the field changeable graphics cards indicates the presence of a graphics upgrade on the graphics card.

PATENT

Atty. Dkt. No. NVDA/P001277

Claim 21 (Currently Amended): Apparatus as claimed in claim 20 wherein a first voltage level on the one connector pin indicates the graphics upgrade is present on the graphics card, and a second voltage indicates ~~[[a]] the loop-through card with no graphics processing unit~~ is present.

Claim 22 (New): The apparatus of claim 1 including a plurality of output displays including video graphics (VGA), television (TV), low voltage differential signaling (LVDS) and digital video interface (DVI), each of the VGA and TV output being devices coupled to outputs of both the fixed rendering device and the field-changeable card.

Claim 23 (New): The apparatus of claim 22 wherein the LVDS display is coupled to both the fixed rendering device and the field changeable rendering card.

Claim 24 (New): The apparatus of claim 22 wherein the LVDS output is coupled to an output of the passive loop-through card.

Claim 25 (New): The apparatus of claim 22 wherein the DVI display is coupled to an output of the field-changeable card.

Claim 26 (New): The apparatus of claim 22 including a multiplexer coupled between the VGA display and the TV display and each of the fixed rendering device and the field changeable card and responsive to the presence of the field changeable rendering card to connect the VGA and TV output devices to the field changeable rendering card.